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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,667	12/29/2001	Dennis Rauschmayer	TI-32214	4638

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EXAMINER

MARCELO, MELVIN C

ART UNIT PAPER NUMBER

2662

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,667

Applicant(s)

RAUSCHMAYER, DENNIS

Examiner

Melvin Marcelo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Applicant should supply the missing US Serial Number on page 1 of the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Mallory (US 6,335,933 B1).

Applicant admits that the Broadband Wireless Internet Forum ('BWIF') teaches the particular fixed wireless communication system having a base station and customer premises equipment (see specification, page 6, line 5 to page 7, line 17), except for the use of the ARQ protocol with a PDU. Mallory teaches the use of the ARQ protocol with a PDU (piggyback Nacks on a frame, column 8, lines 25-49; column 11, lines 44-49; and column 15, lines 1-9). Mallory's system is intended for use in an unreliable physical layer such as a radio frequency link (column 3, lines 20-25) for the purpose of reducing data loss on the network (column 1, lines 6-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Mallory's piggyback Nack system into the admitted prior art BWIF system since a skilled artisan would have been motivated to reduce the data loss over an unreliable physical layer such as a radio frequency link.

With respect to the claims below, references to the prior art appear in parenthesis.

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Claims

1. *A method of operating a fixed wireless communications system having a base station and customer premises equipment ("CPE"), the system utilizing demand assignment ("DA") media access control ("MAC") and variable length protocol data units ("PDUs") for messages between the base station and the CPE (Admitted prior art BWIF system), which comprises:*

in response to the failure of the CPE to receive all of the PDUs of a message from the base station,

opening a PDU at the CPE, inserting ARQ data therein,

closing the PDU, and

transmitting the ARQ data-containing PDU to the base station; and in response to the receipt by the base station of the ARQ data-containing PDU,

opening the ARQ data-containing PDU and removing the ARQ data,

determining from the ARQ data which PDUs were missing at the CPE, and

re-sending the missing PDUs from the base station to the CPE (Mallory, Nack system (column 2, line 61 to column 3, line 10), wherein piggybacked Nack is inserted into an opened frame (Nack Extension, Figure 8)).

2. *A method as in claim 1, wherein: the system is a multichannel multipoint distribution system (BWIF system).*

3. *A method as in claim 2, wherein: the MAC is DOCSIS (BWIF system).*

4. *A method as in claim 1, wherein: whether or not the CPE receives all of the PDUs of a message from the base station is ascertained by inserting a different sequence number into each PDU, and at the CPE determining if any sequence number is missing (Mallory, column 15, line 63 to column 16, line 4).*

5. A method as in claim 4, wherein: the ARQ data includes any missing sequence numbers, which the base station utilizes in identifying those PDUs to be re-sent (**Mallory, column 7, lines 9-17**).

6. A method as in claim 5, wherein: the sequence numbers are generated according to a rule which is available at the base station and the CPE (**Mallory's scheme, column 7, lines 9-17**).

7. A method as in claim 6, wherein: each sequence number is a member of a series, adjacent members of which differ by a common factor (**Mallory, column 18, Table 5, Send Sequence Number**).

8. A method as in claim 7, wherein: the series and its members include alpha-numeric characters (**Mallory, column 18, Table 5, Send Sequence Number**).

9. A method as in claim 1, wherein: the PDUs are Ethernet packets which include a plurality of layers or fields (**Mallory, Figure 6**).

10. A method as in claim 9, wherein: each Ethernet packet is modified to include an ARQ layer inserted between two originally adjacent layers of the Ethernet packet (**Mallory, Figure 8, Nack Extension inserted into the header, which is piggybacked onto the frame, column 15, lines 1-9**).

11. A method as in claim 10, wherein: the ARQ layer is inserted between a data type layer and a user data layer (**Mallory, piggybacked Nack between control data in the header (Figure 8) and Ethernet payload user data (Figure 6)**).

12. A method as in claim 10, wherein: the ARQ layer includes a sequence number (**Mallory, column 7, lines 9-17**).

13. A method as in claim 12, wherein: whether or not the CPE receives all of the Ethernet packets of a message from the base station is ascertained by inserting a different

sequence number into the ARQ layer of each Ethernet packet, and at the CPE determining if any sequence number is missing (Mallory, column 15, line 63 to column 16, line 4).

14. A method as in claim 13, wherein: the ARQ data includes any missing sequence numbers, which the base station utilizes in identifying those Ethernet packets to be re-sent (Mallory, column 15, line 63 to column 16, line 4).

15. A method as in claim 14, wherein: the sequence numbers are generated according to an algorithm which is available at the base station and the CPE (Mallory's scheme, column 7, lines 9-17).

16. A method as in claim 15, wherein: the sequence numbers are members of a series, adjacent members of which differ by a common factor (Mallory, column 18, Table 5, Send Sequence Number).

17. A method as in claim 16, wherein: the series and its members include alpha-numeric characters (Mallory, column 18, Table 5, Send Sequence Number).

18. A fixed wireless communications system having a base station and customer premises equipment ("CPE"), the system utilizing demand assignment ("DA") media access control ("MAC") and variable length protocol data units ("PDUs") for messages between the base station and the CPE (Admitted prior art BWIF system), which comprises:

a processing facility at the CPE for detecting the failure of the CPE to receive all of the PDUs of a message from the base station and in response to so detecting for opening a PDU at the CPE, inserting ARQ data therein, closing the PDU, and transmitting the ARQ data-containing PDU to the base station; and

a processor at the base station responsive to the receipt by the base station of the ARQ data-containing PDU for opening the ARQ data-containing PDU and removing the ARQ data, determining from the ARQ data which PDUs were missing at the CPE, and re-sending the

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missing PDUs from the base station to the CPE (Mallory, Nack system (column 2, line 61 to column 3, line 10), wherein piggybacked Nack is inserted into an opened frame (Nack Extension, Figure 8)).

19. A system as in claim 18, wherein: the system is a multichannel multipoint distribution system (BWIF system).

20. A system as in claim 19, wherein: the MAC is DOCSIS (BWIF system).

21. A system as in claim 18, wherein: the processor at the base station inserts a different sequence number into each PDU of the message, and the processing facility at the CPE determines if any sequence number is missing, thereby ascertaining whether or not the CPE has received all of the PDUs of the message (Mallory, column 15, line 63 to column 16, line 4).

22. A system as in claim 21, wherein: the ARQ data includes any missing sequence numbers, which the processor at the base station utilizes in identifying those PDUs to be re-sent (Mallory, column 15, line 63 to column 16, line 4).

23. A system as in claim 22, wherein: the sequence numbers are generated according to a rule which is available at the base station's processor and at the CPE's processing facility (Mallory's scheme, column 7, lines 9-17).

24. A system as in claim 23, wherein: each sequence number is a member of a series, adjacent members of which differ by a common factor (Mallory, column 18, Table 5, Send Sequence Number).

25. A method as in claim 24, wherein: the series and its members include alpha-numeric characters (Mallory, column 18, Table 5, Send Sequence Number).

26. A system as in claim 18, wherein: the PDUs are Ethernet packets which include a plurality of layers or fields (Mallory, Figure 6).

27. A system as in claim 26, wherein: each Ethernet packet is modified to include an ARQ layer inserted by the processor at the base station between two originally adjacent layers of the Ethernet packet (**Mallory, Figure 8, Nack Extension inserted into the header, which is piggybacked onto the frame, column 15, lines 1-9).**

28. A system as in claim 27, wherein: the ARQ layer is inserted between a data type layer and a user data layer (**Mallory, piggybacked Nack between control data in the header (Figure 8) and Ethernet payload user data (Figure 6)).**

29. A system as in claim 28, wherein: the ARQ layer includes a sequence number (**Mallory, column 7, lines 9-17).**

30. A system as in claim 18, wherein: the processor at the base station inserts a different sequence number into each Ethernet packet of the message, and the processing facility at the CPE determines if any sequence number is missing, thereby ascertaining whether or not the CPE has received all of the PDUs of the message (**Mallory, column 15, line 63 to column 16, line 4).**

31. A system as in claim 30, wherein: the ARQ data sent by the processing facility at the CPE includes any missing sequence numbers, which the processor at the base station utilizes in identifying those Ethernet packets to be re-sent (**Mallory, column 15, line 63 to column 16, line 4).**

32. A system as in claim 31, wherein: the sequence numbers are generated according to an algorithm which is available at processor of the base station and processing facility of the CPE (**Mallory's scheme, column 7, lines 9-17).**

33. A system as in claim 32, wherein: the sequence numbers are members of a series, adjacent members of which differ by a common factor (**Mallory, column 18, Table 5, Send Sequence Number)**

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34. A method as in claim 33, wherein: the series and its members include alpha-numeric characters (Mallory, column 18, Table 5, Send Sequence Number).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 571-272-3125. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melvin Marcelo
Primary Examiner
Art Unit 2662

September 29, 2005